

## Special Issue on Advances in Information and Networks

### Selected Best Papers of 2012 International Conference on Information, Computing and Telecommunications (ICICT 2012)

# Guest Editorial

This special issue comprises of 22 selected papers from the 2012 International Conference on Information, Computing and Telecommunications (ICICT 2012). The conferences received 1660 paper submissions from 11 countries and regions, of which 810 were selected for presentation after a rigorous review process. From these 810 research papers, through two rounds of reviewing, the guest editors selected 22 as the best papers on the software track of the Conference. The candidates of the Special Issue are all the authors, whose papers have been accepted and presented at the ICICT 2012, with the contents not been published elsewhere before.

Information, Computing and Telecommunications are very hot and important research topics and gain more attention by economy as well as society in recent years. The 2012 International Conference on Information, Computing and Telecommunications (ICICT 2012) will be held from Jan 7~8, 2012 in Harbin, P.R. China. This conference is co-sponsored by Harbin University of Science and Technology and International Science and Engineering Research Center, and it is technical co-sponsored by Harbin Engineering University, Northeast Forestry University, Harbin Normal University, Heilongjiang University, Northeast Petroleum University and Harbin University.

“DREET: A Data-Reliable, Energy-Efficient Transport Layer Protocol”, by Gang Han, Jia Lu, Xinbiao Gan, Huanzhong Li and Wenhua Dou, proposes the metric of data-reliability to measure the loss of sensor data when transporting and a transport protocol based on this metric, which is proven to be data-reliable and energy-efficient by simulation.

“The Meso-level Numerical Experiment Research of the Mechanics Properties of Recycled”, by Aijiu Chen, Xiaozhou Xia, Qing zhang, ming wu, proposes with the meso finite element model just generated, the damage distribution and evolution processes of the RC are simulated and tracked. and which corresponds to the CT scanning pictures.

“Model Checking and Verification of the Internet Payment System with SPIN”, by Wei Zhang, Wen-ke Ma, Hui-ling Shi, Fu-qiang Zhu, proposes a model checking method to verify the security and reliability of the Internet Payment Systems, including the PROMELA modeling process, the system properties description and the initial results on the actual verification with SPIN.

“Service Selection Based on Behavior Matching”, by Mingyue Jiang, Zuohua Ding, Jing Liu, proposes a service selection technique based on behavior matching, thus this technique can protect us from obtaining “bad” service during service composition. By integrating the selection algorithm to IBM WebSphere Process Server, the web service binding can be automatically completed in the run time.

“Research of the Electro-hydraulic Servo System Based on RBF Fuzzy Neural Network Controller”, by Huaizhong Chen, proposes a kind of control algorithm about electro-hydraulic speed governor based on fuzzy neural networks, and simulation study proves that this control system has a better adaptability and control effect.

“Lip AUs detection by Boost-SVM and Gabor”, by Xianmei Wang, Yuyu Liang, Xiujie Zhao, Zhiliang Wang, proposes a solution for the identification of five types of lip AUs by non-cascaded Adboost framework with SVM as the weak classifiers and Gabor features.

“Robust Text-Independent Speaker Identification in a Time-Varying Noisy Environment”, by Yaming Wang, Fuqian Tang, Junbao Zheng, proposes a new MFCC based speaker identification system that cover important aspects for application, such as how accurate it can be, how well it is in avoiding time-varying noise.

“Design and Implementation of Radio Function Module of an Embedded Car Audio System Based on ITRON Standard”, by Di Wu, Chenxi Hou, Limin Sun, Jiangchuan Liu, introduces the architectural design and implementation details for the XM function module in an embedded car audio system based on ITRON standard.

“Blank Nodes in RDF”, by Lei Chen, Haifei Zhang, Ying Chen, Wenping Guo, proposes some methods to eliminate the inconsistencies caused by blank nodes, such as how to use entailment to make RDF graphs leaner and how to transform blank nodes to URI references.

“An Object Tracking Algorithm Based on the "current" Statistical Model and the Multi-Feature Fusion”, by Jinhua Wang, JieCao, Di Wu, Yabing Yu, proposes an object tracking algorithm. This paper mainly to improve the performance of the target tracking by the way of feature fusion and the improved algorithm, such as accuracy, real-time and anti-jamming ability in complex background.

“Structure Design of Twin-Spirals Scroll Compressor Based on 3C”, by Bin Peng, Hongsheng Zhang, Rong-zhen Zhao, Li Zhang, proposes CAD/CAM/CAE method to the structure of twin-spirals scroll compressor from conceptual design to finished product. The mathematical model, performance prediction and optimization, CAE analysis, virtual

model of TSSC are developed.

“An Ontology-Based Framework of Requirements Evolvment Management”, by Hongyue He, Zhixue Wang, Ying Zhang, Weizhong Zhang, proposes an ontology-based framework of Requirements Evolvment Management, it describes that how to use ontology to record the information about Requirements Evolvment(RE) and how to analyze the consistency and influence of RE.

“Formal Description of Simulation Runtime Support Platfrom Architecture with XYZADL”, by Liyang SUN, Shaojie Mao,Zhong LIU, processes architecture of NCS-RSP by adopting dual software architecture description framework XYZ/ADL through graphics language and formal language respectively. Then this paper decomposes and refines the core service layer during the construction of CoST, which not only expresses the architecture graphics and behavioral abstraction of NCS-RSP from visual viewpoint, but also validates the correctness and completeness of architecture design from formal view. and this is a new attempt of formal description in military simulation domain and provides a guide for the composition and reuse of NCS-RSP service.

“Improved Attitude Algorithm for Fiber-Optic-Gyro Strapdown INS”, by Qian Li, Yueyang Ben, Fen Sun, Fei Yu, Wei Gao, proposes a set of improved attitude algorithms for fiber-optic-gyro strapdown INS using angular rate, which are developed and evaluated under classical coning motion.

“The Design and Implementation of Composite Collaborative Filtering Algorithm for Personalized Recommendation”, by Liang Hu, Wenbo Wang, Feng Wang, Xiaolu Zhang, Kuo Zhao, proposes a composite collaborative filtering algorithm for personalized recommend to solve the original Collaborative Filtering algorithm problem such as “None of User Starting” and “Data Sparsity”.

“Generating Executable Capability Models for Requirements Validation”, by Wei-zhong Zhang, Zhi-xue Wang, Wen Zhao, Ying-ying Yang, Xin Xin, proposes a formalization definition of Application activity diagrams, representing dynamic behaviors of systems in capability requirements models, and a mapping algorithm of translating them into executable models for simulation and validation.

“A Hybrid Algorithm of Raster Conversion for Circle Based on Pattern Analysis”, by Haiwen Feng, Lianqiang Niu, Bowen Fu, Ling Zhong, proposes a hybrid algorithm which combines multi-point movement, pixel movement and run-length technique in order to improve the speed of raster conversion for circle arc.

“Software Reliability Test Based on Markov Usage Model”, by Kuanjiu Zhou, Xiaolong Wang, Gang Hou, Jie Wang and Shanbin Ai, proposes an efficient method to generate test cases based on Markov usage model, which is built from an improved STM, and then implements a MTCG tool with verified high efficiency.

“UML Modeling and Parametric Design for Cross Shaft Universal Coupling CAD System”, by Yongming Wang, Jiangtao Li, proposes its functional framework of cross shaft universal coupling CAD system, establishes three UML models and develops its parametric design software.

“An Online Kernel Learning Algorithm based on Orthogonal Matching Pursuit”, by ShiLei Zhao, Peng Wu, YuPeng Liu, proposes a kind of online kernel learning algorithm which utilizes “kernels trick” and “orthogonal matching pursuit” not only to estimate the nonlinear target function but also to keep control of the sparsity of the solution.

“Laplacian Meshes Deformation Based on the Offset of Sketching”, by Sha Chenming, Zhang Xiaojing, Yue Yajie proposes a new Laplacian meshes deformation based-on the offset of sketching to solve the drawback that Laplacian coordinates are not invariant under rotation.

“Research on Measurement of Software package dependency based on Component”, by Guang-yi TANG, Hong-wei XUAN, proposes a method to detection existence of the package dependency loop, and developed software system to analyze the dependencies between the software packages and use a graphical method to express this dependency.

We would like to take this opportunity to thank the authors for the efforts they put in the preparation of the manuscripts and for their valuable contributions. We wish to express our deepest gratitude to the program committee members for their help in selecting papers for this issue and especially the referees of the selected papers for their thorough reviews under a tight time schedule. Last, but not least, our thanks go to the editorial board of the “Journal of Software” for the exceptional effort they did throughout this process.

In closing, we sincerely hope that you will enjoy reading this special issue.

#### Guest Editor:

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Prof. Shifei Ding was born in Qingdao, China, in 1963, received his bachelor's degree and master's degree from Qufu Normal University in 1987 and 1998 respectively. He received his Ph.D degree from Shandong University of Science and Technology in 2004. He received Postdoctoral degree from Key Laboratory of Intelligent Information Processing (IIP), Institute of Computing Technology (ICT), Chinese Academy of Sciences (CAS), and his advisor was Professor Z.Z. Shi. And now, he works in China University of Mining and Technology as a professor and Ph.D supervisor. His research interests include Artificial Intelligence, Pattern Recognition, Machine Learning, Data Mining, and Granular Computing et al. He has published 5 books and more than 80 papers in international conferences and journals.